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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/815,913	03/22/2001	Yong Chen	10004618-1	6205
7590 08/24/2004				
HEWLETT-PACKARD COMPANY Intellectual Property Administration P.O. Box 272400 Fort Collins, CO 80527-2400			EXAMINER OLSEN, ALLAN W	
			ART UNIT 1763	PAPER NUMBER

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/815,913

Applicant(s)

CHEN, YONG

Examiner

Allan Olsen

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 11-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2 and 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,772,905 issued to Chou in view of US patent 5,866,806 issued to Samsavar et al. (hereinafter, Samsavar).

Chou teaches an imprint lithography alignment method. Chou teaches providing alignment marks on an imprint mold and on the substrate to be imprinted. Chou teaches using an electrical alignment technique. Specifically, Chou teaches aligning with capacitance sensors (column 6, lines 47, 60-65). Chou teaches etching the imprinted pattern to transfer the pattern to the underlying layer.

Chou does not teach measuring a tunneling current to determine the alignment.

Samsavar teaches that capacitance sensing and the measurement of tunneling current may both be used to determine the proximity or alignment of two features (column 9, lines 3-20).

It would have been obvious to one skilled in the art to measure tunneling current to align the mold and substrate of Chou because Chou teaches using capacitance sensing as an electrical alignment technique and Samsavar teaches that the measurement of capacitance and the measurement of tunneling current may both be used to are to determine the relative proximity or alignment between two features. As such, capacitance and tunneling current measurements are recognized in the art as equivalent means for determining the alignment of two features.

Response to Arguments

Applicant's arguments filed June 7, 2004 have been fully considered but they are not persuasive.

Applicant argues that "Samsavar does not teach or suggest anything about lithographic alignment, much less anything about aligning a patterned mold with respect to an alignment mark disposed on a substrate as recited in claim 1".

The examiner notes that Samsavar was not relied upon for teaching lithographic alignment, or aligning a patterned mold with respect to an alignment mark disposed on a substrate. These aspects of the claimed invention are taught by the primary reference (Chou).

With respect to Chou, Applicant and the examiner agree that Chou teaches the use of capacitance sensing as an electrical alignment technique. However, Applicant takes exception with the examiner's statement that "Chou generically teaches using an electrical alignment technique". Chou states that precise alignment between mold 10

and film 20 is achieved using optical or electrical alignment techniques. However, Applicant argues that there is only one instance where Chou uses the phrase "optical or electrical alignment techniques" and it is the only instance where Chou does not specifically refer to capacitance sensing as the electrical alignment technique. Applicant argues that the only electrical alignment technique that is taught by Chou is capacitance sensing. As such, Applicant argues that Chou cannot be construed to teach the use of a generic electrical alignment techniques but rather, Chou must be understood to only teach capacitance sensing as the electrical alignment technique. Applicant states: "there is no support whatsoever for the Examiner's implication that Chou provides some suggestion that his nanoimprint lithography apparatus could be modified for electrical alignment techniques other than the capacitance-based electrical alignment technique".

The examiner notes that the debate over the issue of whether or not Chou teaches the use of a generic electrical alignment technique is not particularly relevant to the 103 rejection over Chou in view of Samsavar. Applicant and the examiner agree that Chou teaches the use of capacitance sensing as a means of achieving precise lithographic alignment. However, contrary to Applicant's suggestion, Chou was not relied upon for a suggestion that his nanoimprint lithography apparatus could be modified for electrical alignment techniques other than the capacitance-based electrical alignment technique—for this, the examiner relied upon Samsavar because Samsavar teaches that either capacitance sensing or the measurement of tunneling current may be used to determine the proximity of two features.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M-F 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Mills can be reached on 571-272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Allan Olsen", with a stylized flourish at the end.

Allan Olsen
Primary Examiner
Art Unit 1763